Geometry 9.6 Notes: Solving right triangles

- I can solve right triangles.
- I can use right triangles to solve problems.

if $\sin A = x$, then $\sin^{-1} x = m\angle A$. ← The expression $\sin^{-1} x$ is read as "the inverse sine of x."

if $\cos A = y$, then $\cos^{-1} y = m\angle A$.

if $\tan A = z$, then $\tan^{-1} z = m\angle A$.

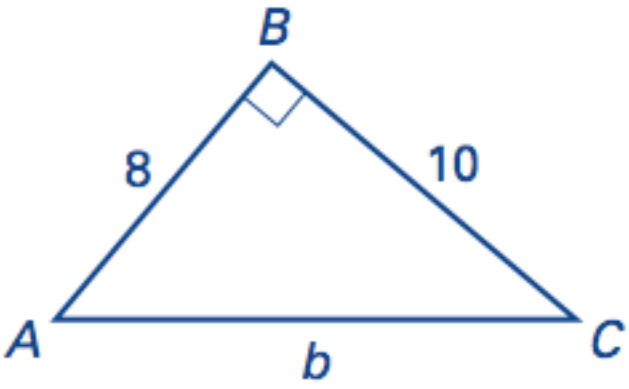
*arcsin, arccos and arccos are alternate versions of the inverse.

Solving Right triangles

- Round side lengths to the nearest tenth.
- Round angle measures to the nearest whole number.

Examples:

1. Solve the right triangle. Round decimals to the nearest tenth.



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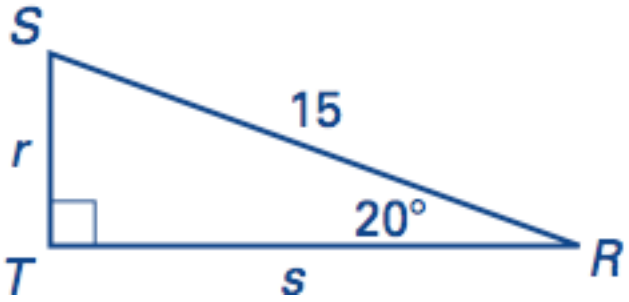
2. Solve the right triangle. Round decimals to the nearest tenth.



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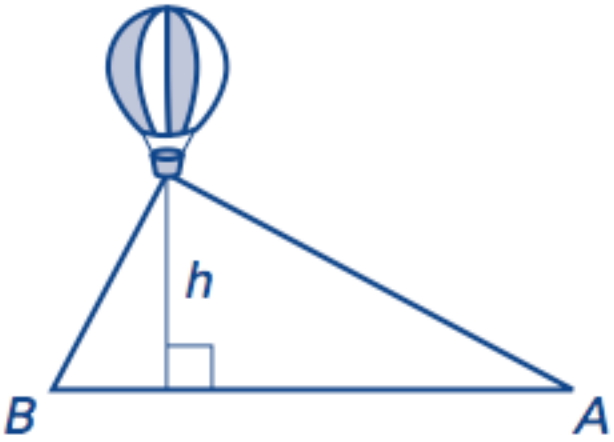
3. During a flight, a hot air balloon is observed by two persons standing at points *A* and *B* as illustrated in the diagram. The angle of elevation of point *A* is $28°$. Point *A* is 1.8 miles from the balloon as measured along the ground. What is the height *h* of the balloon? If Point *B* is 2.8 miles from point *A*, find the angle of elevation of point *B.*



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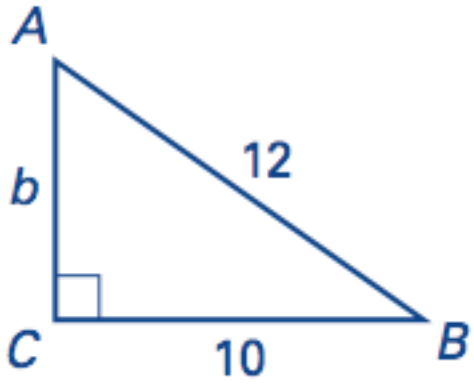
Practice.

4. Solve the right triangle. Round decimals to the nearest tenth.



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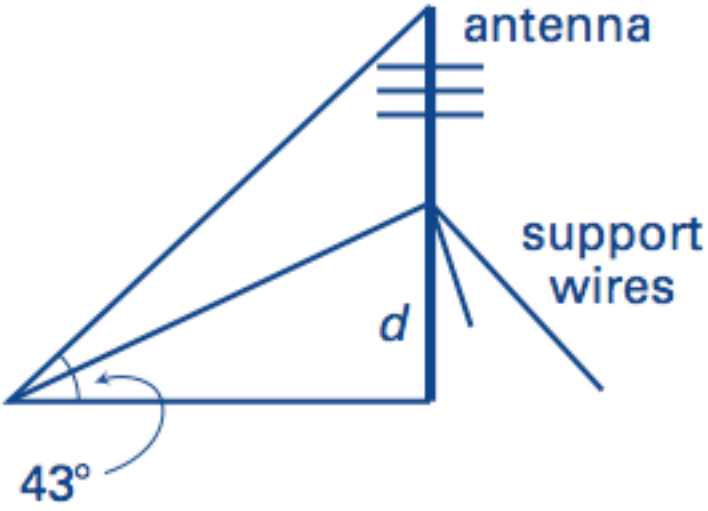
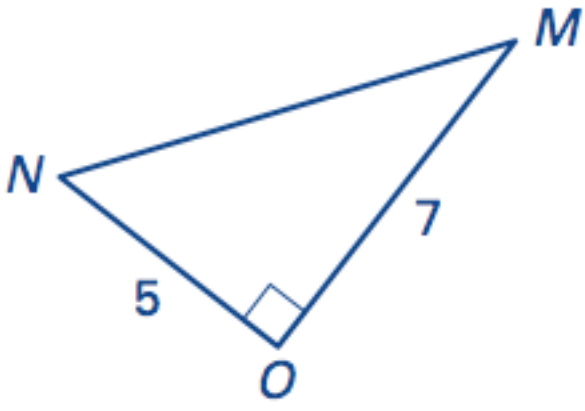
5. The angle of elevation of an antenna is $43°$ as shown in the diagram. If the distance along the ground is 36 feet, find the height of the antenna. Support wires are attached to the antenna as shown with an angle of elevation of $28°$. Find the distance *d* from the bottom of the antenna to the point where the wires are attached.



6. _____What is $m\angle M$ **?**

A) $31°$
B) $36°$
C) $39°$
D) $46°$
E) $55°$



7. What is the minimum amount of information you need to solve a right triangle?

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8. Explain what is meant by solving a right triangle.

True or false.

9. _____ You can solve a right triangle if you are given the lengths of any two sides.

10. _____ You can solve a right triangle if you know only the measure of one acute angle.

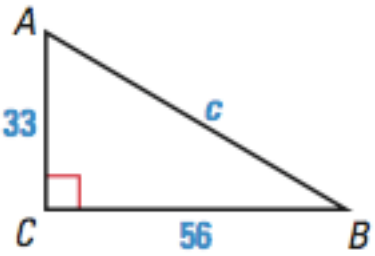
$\measuredangle A$ is an acute angle. Approximate $m\measuredangle A$ to the nearest degree.

11. tan A= 0.7 **12.** tan A = 5.4 **13.** sin A = 0.9

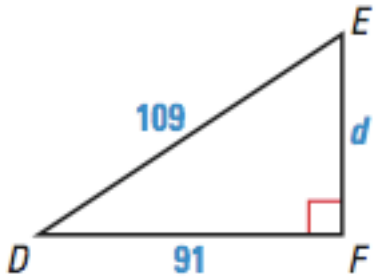
14. cos A = 0.1

Solve the right triangle.

15.



16.



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17.